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# Ski Resort vs. Altitude and Latitude: Competitiveness from the Perspective of the Consumers

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**Abstract:** Serbian ski resorts' altitude and latitude are lower than in most European ski resorts. In the context of climate change and the Serbian Government's plans to keep opening new ski resorts, this study examines the competitiveness of Serbian ski resorts in the eyes of domestic tourists, hence the justification of new developments. This research was carried out in three steps: a statistical analysis of a survey conducted among domestic tourists, an interpretation of the context based on responses to open-ended questions, and a comparison of Serbia's most popular ski resorts with leading ski resorts in Austria, Bosnia & Herzegovina, Bulgaria, Italy, and France. The results showed that Serbian tourists focus on value for money, skiing, and ski infrastructure quality rather than additional activities such as cultural tours, entertainment, or wellness. In the context of international discussions on climate change impacts, environmental consequences of ski resorts, and survey results, we recommend that future strategies of ski resort operators in Serbia focus on developing and promoting complementary activities to winter sports and prioritizing the redevelopment of existing ski resorts rather than constructing new ones.

**Keywords:** ski resorts; competitiveness; tourism; survey; sustainability; climate change; Serbia

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## 1. Introduction

Tourism continues to be a globally expanding and influential industry [1], playing a crucial role in driving economic growth [2,3]. Various sectors are vying for attention in an increasingly competitive market. Among these, ski resorts stand out as a unique form of tourism destination, attracting visitors with their distinct combination of adventure, relaxation, and natural beauty [4].

The competitiveness of ski resorts is influenced by a wide range of factors, with geographical location being a key determinant. Specifically, the altitude and latitude of ski resorts play a crucial role in shaping their appeal to consumers, affecting elements such as snow reliability, accessibility, and the overall skiing experience. As climate change increasingly challenges the quality and duration of snow cover [5], the interplay between altitude, geographic position, and consumer preferences becomes even more significant.

About 75% of Serbia is covered by hills and mountains, with the highest peak reaching an altitude of 2169 m above sea level. Several mountains offer good conditions for ski tourism, with snow cover lasting for more than five months [6]. Serbia is home to more than 30 ski resorts, attracting around 550,000 tourists, although only 12 have significant accommodation facilities and infrastructure, including over 70 ski lifts [6–8]. The major ski resorts, ski zones, and slopes in Serbia are regulated by the Public Company 'Ski Resorts of Serbia' according to the Regulation on the Minimum Technical Requirements for the Designation,

Marking, and Maintenance of Ski Resorts [9]. The four largest ski resorts—Kopaonik, Stara Planina, Zlatibor (Tornik), and Brezovica—have been complemented by plans to open new ski resorts on Golija, where extensive works have already begun and on Kučaj-Beljanica. Kopaonik, the first established and the leading ski resort, has over 40 years of experience, while Stara Planina, as a relatively 'young' resort, has been in operation since 2008. The number of ski-related overnight stays in Serbia is about 750,000, with about 20% of visitors being foreign tourists [6].

As the main ski resort operator in the country, the Public Company 'Ski Resorts of Serbia' envisions becoming a regional leader in high-quality and safe skiing, as well as other sports and recreational activities, while preserving the environment and focusing on sustainable development [10]. Achieving this goal must take into account the impact of climate change and the perceptions of consumers regarding quality expectations.

This paper explores the competitive landscape of ski resorts in Serbia from the perspective of domestic consumers, who make up the majority of visitors. A survey was conducted to gather primary data for both quantitative and qualitative analysis. The next step involved comparing the most prominent ski resorts in Serbia with those in other countries identified in the survey as preferred winter destinations for Serbian tourists. The results provide recommendations for the future development of ski resorts in Serbia, focusing on optimizing their competitiveness in an evolving global tourism market. These recommendations can also be applied to ski resorts worldwide, particularly those facing similar challenges related to climate change and tourist behavior.

The literature review follows, focusing on ski resorts from the perspectives of Serbian tourists' behavior, climate change, environmental impact, and competitiveness, providing a contextual introduction to the analysis. The methodology chapter elaborates on the methods used and the rationale behind their selection. The following Results and Discussion chapter presents quantitative and qualitative findings in both textual and graphical forms, followed by further analysis. Finally, the Conclusions chapter presents recommendations for the development of ski resorts in Serbia and other similar destinations.

## 2. Literature Review

Matlovič and Matlovičová [11] highlight the complexity of factors shaping geographic reality, emphasizing a polycrisis approach. This perspective underscores that no single factor operates in isolation but rather interacts with multiple others simultaneously. To maintain focus, this Literature Review and the study concentrate on the aspects of geographic reality most frequently emphasized in the context of ski resorts by researchers, providing a more in-depth exploration of these key topics.

### *2.1. Behavior of (Serbian) Tourists*

Over the past few years, Serbia has seen an increase in the total number of tourists and overnight stays [7,12–15]. However, approximately 20% of visitors to Serbian ski resorts are foreign tourists, while the share of domestic tourists is declining [7,12–15]. This trend underscores the timeliness of examining the competitiveness of Serbian ski resorts from the perspective of their primary customers in decrease—domestic tourists.

Research is scarce on the preferred destinations of Serbian tourists, particularly concerning ski resorts. The few existing studies, such as those from more than a decade ago [16,17], do not focus specifically on ski resorts. According to several studies, therefore, we only know that Montenegro and Greece are the top summer tourist destinations for Serbian travelers, with Serbia ranking closely behind [16,18]. However, the current literature does not provide information on where Serbian tourists prefer to travel year-round beyond

just skiing. It also does not address how their preferences have been influenced by climate change or their criteria when selecting ski resorts.

More than a decade ago, Najdić and Sekulović [16] showed that most Serbian tourists travel only once a year, preferring coastal destinations for summer vacations over mountain resorts in the winter. More recent research by Mlađenović and Virijević Jovanović [19] exclusively addresses the motivations of skiers but does not consider nonskiing visitors or comparisons with other countries.

Given the scarcity of consumer-oriented studies, some analyses of climate change in Serbian ski resorts can be implicitly used to infer tourist behaviors. For example, Stojsavljević et al. [20] conducted a regression analysis on mean monthly air temperatures and the number of snowy days in the Kopaonik and Zlatibor mountain resorts. The results showed that tourist traffic from season to season is significantly impacted by the analyzed climate parameters, with opposite effects due to the different prime features of the mountains. In spring, higher temperatures and less snow brought more tourists to Zlatibor and fewer to Kopaonik.

In a broader context, interest in ski tourism is stagnating in developed countries [2,21], which might eventually occur in countries currently experiencing a growing trend. In Switzerland, skiing and winter sports started losing their prominence in the early 2010s [22], a trend that was subsequently observed across other Alpine countries as well [23]. Reaching stagnation in the tourist numbers and climate change highlight the future competitiveness challenges that Serbian ski resorts could face due to the decreasing visitor interest [24].

The reviewed literature shows that consumer-oriented studies are infrequent and often outdated, particularly those focused on ski resorts. Additionally, there are instances of conflicting consumer behaviors under similar conditions, leading to divergent outcomes. Conducting new consumer studies specifically targeting ski resorts, regardless of the season, could be valuable in understanding consumer behavior in the evolving context of climate change.

### *2.2. Ski Resorts and Climate Change*

In general, various findings suggest that climate change is influenced by human activity. Abu El-Magd et al. [25] demonstrated the significant impact of climate change on Egypt's hydrological regime. Similarly, Tanoori et al. [26] used a machine-learning approach to show that the effects of climate change vary locally, depending on microclimates, land use decisions, and building material choices.

The impact of climate change on ski resorts worldwide is becoming a crucial issue [27]. Żemła [28] conducted a literature review on the topic of winter sports resorts and natural environment, which showed that out of the 86 analyzed academic articles, a strong majority (51) was about climate change.

According to Spandre et al. [29], the snow conditions are a major priority for ski resort operators to provide comfortable skiing conditions. While some mountains in Serbia benefit from global warming and have become more popular summer destinations [20,30], it has at the same time negatively affected the length and quality of the winter season as a response to the decreasing number of days with snow cover, depth of snow cover, and increasing foggy days on Serbian mountains [5,31]. Malinović-Milićević et al. [32] analyzed the impact of outdoor thermal comfort conditions on visitors to Kopaonik Mountain. Their research, covering three decades of climate change (1991–2020), revealed an increasing annual number of thermally favorable days, accompanied by a decreasing number of days with extreme and strong cold stress. Despite these favorable bioclimatic conditions, the tourist potential remains underutilized in summer, as visitors primarily come to Kopaonik for its winter tourism offerings. For example, the number of overnight stays in winter

months is several times higher than during the rest of the year. The highest number of overnight stays was recorded in January (90,000), while the lowest occurred in autumn, averaging around 12,000 per month. Malinović-Milićević et al. [32] think that this trend can significantly influence tourism in the future and, therefore, call for new strategies in ski resorts to adapt to climate change.

Discrepancies between individual studies show regional differences in climate change impacts on ski resorts. For example, snow cover in Kashmir has shortened in winter, while in Austrian Tirol, warming primarily affects summer [33]. Pons et al. [34] have grouped resorts by their exposure to climate change, with altitude being a key distinguishing factor. Efforts to address these challenges include developing ski resorts at higher altitudes [34,35] or relying on artificial snowmaking [36,37], which leads to a substantial increase in operating costs [38,39]. The expenses associated with purchasing and maintaining snowmaking equipment can render the resort's operations financially unsustainable [38,40–42]. Consequently, altitude is becoming a critical factor in the competitiveness of ski resorts. Research on Alpine ski resorts shows that smaller resorts at higher altitudes often attract more visitors during winter than larger resorts at lower altitudes [43].

The use of artificial snowmaking on ski trails has increased rapidly [22]. Climate change made artificial snow production essential, even in Nordic countries [44,45], with demand rising as altitude and latitude decrease [46]. The production of artificial snow has multiple economic and ecological consequences [22,46], and at some point in the future, depending on the progression of the consequences of climate change, it may not even be effective [47,48]. Case studies on climate change and ski resorts across various regions—the USA and Canada [39,49–51], Alpine countries [52–54], the Pyrenees [34], Japan [37], and India [55]—show differing projections. Some studies predict significant operational challenges for resorts as early as the 2040s [52,55,56], while others anticipate these issues emerging in the latter half of the century [57,58].

Bausch et al. [59] highlight that, beyond the increased costs, snowmaking can lead ski resorts to fall short of customer expectations. The higher expenses for snow production often result in increased ticket prices, causing resorts to be perceived as environmentally unfriendly, which negatively impacts guest loyalty.

The impacts of climate warming on ski resorts are undeniable, and decisionmakers are aware of these changes [36,60–62]. However, managers often focus on short-term weather adjustments rather than long-term strategies [63]. Dornier and Mauri [64] argue that, therefore, adopting sustainable development principles is essential to addressing these challenges.

### *2.3. Environmental Impact*

Most studies on the environmental impact of ski resorts adopt natural science methodologies [28], focusing on both resort construction [65–67] and operations [67,68]. Snowmaking [59,69–72] and grooming [69,72,73] are consistently highlighted as the most environmentally damaging activities.

Researchers from around the world, most notably from the USA, Austria, and Canada, have studied the relationship between ski resort operations and the natural environment [28]. According to Żemła [28], D. Scott was the most active author, next to R. Steiger. It is also worth noting that Scott was one of the pioneers in researching the impact of climate change on ski resorts.

Ćurčić et al. [74] considered the sustainability of ski resorts in the context of their development within protected areas. Their conclusion indicated a broad range of negative consequences, including illegal building, deforestation, fragmentation of natural habitats, erosion, soil loss and pollution, water and air pollution, and noise and light pollution.

Still, they are giving hope that harmonizing development with protection can bring the ski resorts closer to sustainable development. Offered solutions are multidisciplinary planning based on scientific facts. Krtička et al. [75] also show concern about nature protection in ski resorts. As a solution, they propose allocating resort profits to nature conservation rather than further developing infrastructure.

Snowmaking is a common solution to snow deficits; therefore, it is not a surprise that Vanham et al. [70] highlight the problem of large seasonal water fluctuations caused by the demand for special reservoirs. Some studies criticize the management of individual resorts for disregarding nature protection principles [66,76]. According to Luthe et al. [77], it is necessary to take a comprehensive view of how tools and activities in ski resorts are designed to assess their impact on nature and minimize it as much as possible.

The negative impact of tourism on biodiversity is undeniable, and it can take decades to recover [78,79]. Tourist resorts have the strongest impact of all tourism types [78]. However, in practice, protected areas and ski resorts are not mutually exclusive. In New Zealand, ski resorts are almost always located in national parks [79]. In the 1960s and 1970s, the location of ski resorts in protected areas was not a primary concern. Over time, however, Austria and Germany have introduced certain limitations and procedures [79,80]. In the Alps, while ski resort development is permitted in protected areas of lower protection categories, it is usually prevented in national parks [79].

### *2.4. Competitiveness of Ski Resorts*

According to Abreu-Novais et al. [81], competitiveness is defined as 'being in some way superior to competitors' (p. 2), though its interpretation is far more complex. In their comprehensive review of approaches to evaluating tourism destination competitiveness, Abreu-Novais et al. [81] note that the topic has been a focal point since it was first introduced by Crouch and Ritchie [43,81–83]. They highlight that this area of research is broad, often controversial, and subject to criticism. Given the diversity of perspectives and knowledge, achieving a universally accepted set of indicators is unlikely.

Competitiveness in destinations is shaped by comparative and competitive advantages [84]. Comparative advantages refer to inherent features, such as altitude, scenic beauty, intangible cultural heritage, and historical sites. In contrast, competitive advantages are related to man-made and modifiable features like infrastructure, service provision, and recreational activities. In addition to material attributes, the identity, image, and reputation of a ski resort—along with the country in which it is located—also influence tourists' decisions [11].

Jovanović et al. [85] analyzed the key determinants of service quality in Serbian ski tourism based on a survey of recreational skiers who visited Serbia during the winter seasons of 2023 and 2024. The survey, which had a high representation of domestic tourists (54.3%), revealed that *diversity of ski tracks*, *quality of facilities*, and *quality of slopes*—variables most closely related to skiing—were identified as the most important factors. Jovanović et al. [85] also examined gender differences, concluding that male respondents prioritized *lift maintenance and functioning*, *diversity of ski tracks*, and *nightlife*, while female respondents emphasized *restaurant prices*, *meeting different people*, and *quality of facilities*.

Specific contexts, such as ski resort competitiveness, often require the development or adaptation of indicators [86]. However, it is unrealistic to expect a definitive consensus. For instance, Wang [87] and Yangutova et al. [88] conducted studies on ski resort competitiveness in China and Russia, respectively, using more than 40 indicators. Wang [87] grouped these indicators into four categories: *Resources*, *Market ability*, *Tourism performance*, and *Resource and environment protection*. Yangutova et al. [88] classified them into five categories: *Natural resources*, *Tourism resources*, *Government and public support*, *Scope of services provided and their management*, and *Infrastructure construction*. In a related study, Botti

et al. [2] identified three factors that directly influence customers' service experiences: the *Servicescape*, *Contact personnel*, and *Other customers*. Their approach examines how physical surroundings affect consumer behavior, emphasizing the aesthetic and ambient dimensions of the servicescape, including atmospherics, physical design, and decor elements. These examples illustrate the adaptability of competitiveness indicators to different case studies.

Steiger and Abegg [89] emphasize that the relevance of specific competitiveness indicators depends on the scale and scope of the ski resort. International ski resorts, for instance, cater to a different audience than small, family-oriented ski areas. Features like size and comfort may be critical for international resorts but less relevant for regional markets. However, both types of resorts play vital roles in the ski network. Regional ski areas often serve as training grounds for beginners and future skiers who may later visit international resorts.

Geographical factors, such as altitude and latitude, significantly influence ski resort competitiveness, particularly from the perspective of consumer preferences. In Serbia, all ski resorts are below 2000 m, making them less competitive compared to Alpine resorts, which reach altitudes of up to 3899 m (e.g., Zermatt/Breuil-Cervinia/Valtournenche-Matterhorn). In addition to altitude, climate change is one of the primary concerns for ski resort competitiveness [2,89]. Steiger and Abegg [89] highlight the importance of features such as transport facility comfort and snowmaking systems. Resorts equipped with snowmaking systems are generally more successful than those with limited or no snowmaking capabilities.

Diversification of activities also plays a crucial role in attracting visitors. Ski resorts offering unique and meaningful summer and additional activities have a greater chance of being chosen as destinations [90,91]. In Austria, for example, ski lift operators have recognized the importance of multi-purpose, multi-seasonal services to remain competitive [92].

Most research on ski resorts focuses on Alpine countries. Some findings indicate that France is the most expensive but also the most technically advanced, Austria is the most affordable and family-oriented, and Italy primarily caters to domestic skiers [93]. According to Pröbstl-Haider and Flaig [91], pricing must reflect market demand and be fine-tuned throughout the season and for different demographic groups. Polyanskova [94] refers to this strategy as 'flexible pricing'.

Botti et al. [2] underscore the need for continuous evaluation of the market and the competitiveness of individual locations, particularly in the face of climate change and competition from emerging ski destinations like Bulgaria and Slovenia. These countries provide more affordable alternatives to Alpine resorts while catering to changing tourist preferences in accommodation and ski quality. Steiger and Abegg [89] observe that the strategies of less-developed ski regions often aim to improve their competitiveness. However, they argue that such ambitions may be overly optimistic given challenges like financial constraints, climatic conditions, and demographic shifts.

Despite the recognized need for long-term destination development, the attention paid to competitiveness often does not align with its importance [81]. This discrepancy may stem from the absence of a common definition or evaluation framework [82]. Ski tourism competitiveness, in particular, necessitates tailored measurement indicators [89,95]. However, studies specifically measuring ski resort competitiveness remain scarce [43].

## 3. Methodology

The literature review highlights that consumer-oriented studies on ski resorts in Serbia are both rare and outdated, particularly in addressing diversification and year-round operations. While the impacts of climate change are evident, the issue appears to be less about awareness and more about driving behavioral change among operators and

consumers. This suggests that ski resort operators require fresh insights to develop future strategies that align with evolving environmental conditions and customer expectations. Therefore, we pose the following research questions and hypothesis:

Overarching question: What strategic priorities should ski resort operators in Serbia focus on for future development?

*Subquestion 1.* Is it justifiable, in the context of climate change and environmental impacts, to open new ski resorts at lower altitudes and latitudes?

**Hypothesis 1.** *In the context of climate change and environmental impacts, opening new ski resorts at lower altitudes and latitudes is not justifiable due to their increased vulnerability to inconsistent snow cover, higher snowmaking costs, shorter skiing seasons, and significant environmental consequences.*

*Subquestion 2.* What offerings and strategies can Serbian ski resorts adopt to attract domestic tourists and enhance their competitiveness compared to other European ski destinations?

**Hypothesis 2.** *To remain competitive with European ski resorts and attract domestic tourists, Serbian operators must diversify their tourism offerings, improve infrastructure and services, and develop and promote new activities to shape new preferences of local travelers while considering climate change impacts.*

This research aims to provide recommendations for improving the competitiveness of Serbian ski resorts by exploring consumer perspectives and comparing them with the most competitive resorts abroad favored by Serbian tourists.

The process for developing recommendations involves three key steps. First, a survey was conducted among domestic ski resort visitors, and a quantitative analysis of the close-ended questions was performed. Second, performing a qualitative analysis of the survey's open-ended questions. Finally, the most preferred ski resort in Serbia was compared with the most favored ski resorts in other countries, as identified by Serbian domestic ski resort visitors in the survey.

The primary data via the survey were collected from 13 to 30 January 2021. The survey targeted adults who had visited a ski resort within the five years preceding the COVID-19 outbreak (from the winter of 2015/16 to the winter of 2019/20), regardless of the season or whether skiing was the primary reason for their visit. Consequently, this research focuses on the competitiveness of ski resorts from the perspective of all consumers, not just skiers.

The questionnaire was pre-tested with colleagues. The final set of questions was incorporated into a Google Form, which required respondents to submit their answers online. This format allowed respondents to complete the survey at their convenience using phones, tablets, or computers. The form was designed to take no more than 10 min to complete. Dropout responses were excluded from the analysis.

The survey was distributed via Facebook pages related to skiing, tourism, nature enthusiasm, rural tourism, and mountaineering, as well as through a network of colleagues, friends, and family. Respondents personally known to the researchers were encouraged to share the survey link further, employing the snowball sampling technique.

The questionnaire covered several dimensions of competitiveness. The competitiveness indicators or determinants, as referred to by Abreu-Novais et al. [81], were adapted from their study and condensed into approximately 13 questions (Table 1). Additionally, respondents were asked five general questions for demographic analysis. The total number of questions varied based on the respondents' answers, as a few additional questions were posed only to those who visited ski resorts specifically for skiing.

**Table 1.** Survey questions and their compatibility with competitiveness determinants.

| Survey Questions | Competitiveness Determinants Based on Abreu-Novais et al. (2016) [81] |
| --- | --- |
| **1. Gender: (only one answer is possible)**<br>• Female<br>• Male<br>• Other | N.A. |
| **2. Age (please enter your age)** | N.A. |
| **3. Place of residence (please enter your place of residence):** | N.A. |
| **4. Highest completed level of education (only one answer possible)**<br>• Primary school<br>• High school/Gymnasium<br>• Bachelor/Master studies<br>• PhD<br>• Other | N.A. |
| **5. Have you visited a ski resort in Serbia, abroad, or both in the last 5 years? (only one answer is possible)**<br>• No, neither in Serbia nor abroad **(Submit form)**<br>• Yes, both in Serbia and abroad **(Go to Section 5—Ski resorts in Serbia and abroad)**<br>• Yes, in Serbia **(Go to Section 3—Ski resorts in Serbia)**<br>• Yes, abroad **(Go to Section 4—Ski resorts abroad)** | N.A. |
| **6. Which ski resort(s) have you visited in Serbia in the last 5 years? (you can check as many of the provided Checkboxes)** | N.A. |
| • Kopaonik<br>• Stara planina<br>• Zlatibor<br>• Brezovica<br>• Divčibare<br>• Golija<br>• Goč<br>• Tara<br>• Other | Destination preferences<br>Location |
| **7. Where abroad have you visited a ski resort in the last 5 years? (you can check as many of the provided Checkboxes)**<br>• Austria<br>• Bosnia & Herzegovina<br>• Bulgaria<br>• Montenegro<br>• France<br>• Italy<br>• Germany<br>• Slovenia<br>• Switzerland<br>• Other | Destination preferences<br>Location |

**Table 1.** *Cont.*

| Survey Questions | Competitiveness Determinants Based on Abreu-Novais et al. (2016) [81] |
| --- | --- |
| **8. In the past 5 years, has the occupancy of accommodation facilities in ski resorts in Serbia been a reason for you to stay in a ski resort abroad in some situations? (only one answer is possible)**<br>• Yes<br>• No | Availability of human and capital resources<br>Carrying capacity<br>Market ties<br>Destination organization and structure<br>Destination preferences<br>Tourism-related infrastructure |
| **9. What were your most important criteria when choosing a ski resort? (Select up to three of the suggested answers)** | Accessibility<br>Availability of human and capital resources |
| **10. What were your least important criteria when choosing a ski resort? (Select up to three of the suggested answers)**<br>• Proximity of the ski resort to the place of residence.<br>• Price.<br>• Diversity of services and activities.<br>• Beauty of nature.<br>• High snowfall probability.<br>• Friendliness of the local population.<br>• Diversity and capacity of skiing infrastructure. | Culture and history<br>Destination organization and structure<br>Destination perception<br>Entertainment<br>Environmental management<br>Hospitality<br>Human resource development<br>Market ties<br>Mix of activities<br>Natural attractors<br>Price competitiveness<br>Service excellence<br>Special events<br>System definition/clear policy<br>Tourism-related infrastructure |
| **11. Is the possibility of accommodation in high-category hotels (4 or 5 stars) an important criterion for you when choosing a ski resort? (only one answer is possible)**<br>• Yes<br>• No | Destination organization and structure<br>Entertainment<br>Hospitality<br>Mix of activities<br>Service excellence<br>Tourism-related infrastructure |
| **12. What was your primary motivation for staying in a ski resort? (Only one answer is possible)**<br>• Skiing and/or other winter sports (Go to Section 7—Motives for choosing a ski resort—skiing infrastructure)<br>• Stay and walk in nature (Go to Section 8—Motives for choosing a ski resort—cultural heritage)<br>• Relaxation in the facilities offered by the hotel (e.g., pool, sauna, gym, restaurant, bar) (Go to Section 8—Motives for choosing a ski resort—cultural heritage) | Availability of human and capital resources<br>Destination organization and structure<br>Destination perception<br>Destination preferences<br>Entertainment<br>Mix of activities<br>Natural attractors<br>Special events<br>System definition/clear policy<br>Tourism-related infrastructure |
| **13. Which of the following additional elements contributed to your choice of the ski resort? (You can check as many of the provided Checkboxes)**<br>• Length of ski slopes.<br>• Number and varied difficulty of ski slopes.<br>• Opportunity for Nordic skiing.<br>• Possibility for artificial snow production on ski slopes.<br>• Facilities tailored for children.<br>• Presence of gondolas.<br>• Presence of ski school/instructors. | Availability of human and capital resources<br>Destination organization and structure<br>Destination perception<br>Destination preferences<br>Mix of activities<br>Security and safety<br>System definition/clear policy<br>Tourism-related infrastructure<br>Visitor management |

**Table 1.** *Cont.*

| Survey Questions | Competitiveness Determinants Based on Abreu-Novais et al. (2016) [81] |
| --- | --- |
| **14. Was the possibility of visiting cultural and historical monuments in the vicinity part of your motivation in choosing a ski resort? (Only one answer is possible)**<br>• Yes<br>• No | Culture and history<br>Mix of activities |
| **15. What is the dominant means of transportation you used to travel to the chosen ski resort in the last 5 years? (If you visited multiple resorts, choose the one you went to most frequently or the one you would prefer to return to) (Only one answer is possible)**<br>• Car<br>• Bus<br>• Train<br>• Plane | Destination organization and structure<br>General infrastructure<br>Market ties<br>System definition/clear policy |
| **16. What is the dominant source of information based on which you chose the ski resort where you stayed? (If you visited multiple resorts, choose the one you visited the most frequently or the one you would prefer to return to) (Only one answer is possible)**<br>• Friends<br>• Internet<br>• Television<br>• Advertisements on the internet, television, billboards<br>• I follow travel agencies' offers<br>• Other | Communication channels<br>Destination awareness<br>Destination marketing<br>Positioning and branding<br>System definition/clear policy |
| **17. What is the greatest advantage of the ski resort you chose when it comes to costs? (If you visited multiple resorts, choose the one you visited the most frequently or the one you would prefer to return to) (Only one answer is possible)**<br>• Affordable accommodation prices in the ski resort.<br>• Affordable transportation costs to the ski resort.<br>• Affordable prices for food, drinks, and other services are not included in the accommodation price.<br>• Affordable ski pass prices. | Destination perception<br>Destination preferences<br>Entertainment<br>Hospitality programs<br>Positioning and branding<br>Price competitiveness<br>Service excellence<br>Shopping<br>System definition/clear policy<br>Value for money<br>Visitor management |
| **18. If you would like to add something that we haven't asked and you consider an important aspect when choosing a ski resort, please fill in the following field.** | Global environment<br>Possibly all |

Most questions were multiple-choice, except for those related to demographic characteristics (e.g., age, place of residence) and the final open-ended question. The open-ended question allowed respondents to provide additional comments on aspects they deemed most relevant or not adequately covered in the questionnaire.

We relied on Lakens [96], who outlined six common approaches to justify sample size, including resource constraints and heuristics. To determine ours, we reviewed sample sizes from similar studies [1,97–99] and drew on prior experience. Following Kish [100], who recommends a minimum sample size of 30–200 for social science research, we aimed for 100 respondents and successfully exceeded this with over 230 participants.

Domestic tourists make up approximately 80% of visitors to Serbian ski resorts, making them the dominant market segment. Focusing on this group provides valuable insights into their preferences and needs, ensuring representative and meaningful results. Additionally, since fieldwork was not feasible, local online platforms were the primary means of advertising the questionnaire, making domestic tourists more accessible for data collection.

Primary data collected through multiple-choice questions were analyzed using descriptive statistics. Before proceeding with statistical analysis, we checked the limitations of the data using Cross-Tabulation Analysis (Chi-Squared Test) in IBM SPSS (v25) and correlation analysis in Excel. The subdivision of the sample based on multiple-choice responses revealed that the subdivided sample size was insufficient for inferential statistical analysis. Open-ended question responses were treated qualitatively, complementing the statistical results and uncovering potential aspects not addressed by the close-ended questions. Lastly, relevant indicators recognized from the descriptive and qualitative analysis were applied in the real-life comparison of the most competitive ski resort in Serbia (Kopaonik) and ski resorts in the other five countries to which Serbian tourists travel the most—Austria, Bosnia & Herzegovina, Bulgaria, France, and Italy. The choice of additional countries is based on the popularity of ski resorts, as recorded by the survey. The categories by which ski resorts were comprehensively compared corresponded to the aspects covered by the survey, i.e., competitiveness dimensions by Abreu-Novais et al. [81] (Table 1), who listed 47 determinants. Out of these 47, we used 32 because the rest were more appropriate for a survey for operators than customers (e.g., *Planning*, *Vision and leadership*, *Monitoring and evaluation*). The comparison method involved data after the COVID-19 pandemic, so the match with the statements is not absolute, e.g., prices in Bulgaria have increased compared to a few years ago [101]. The comparison aimed to provide additional context to the survey results and highlight what Serbian ski resorts lack relative to their competitors.

## 4. Results and Discussion

### *4.1. Quantitative Analysis*

The survey collected 237 responses, of which seven were excluded from further analysis due to incomplete questionnaires or because they did not meet the focus group criteria (i.e., respondents who did not visit any ski resort between 2015 and 2021). Therefore, the analysis is based on the responses of 230 participants. Demographic data show that males were more responsive than females (53.0%:43.5%), with six respondents not specifying their gender (two selected 'other', and four provided no answer). In terms of age, the largest group falls between 36 and 45 years, while the majority of the sample (70.4%) is between 26 and 45 years old (Figure 1). The youngest respondents were 19 years old, with the oldest being 74 for females and 80 for males. However, the median and average age of male respondents are lower (median age 38, average age 38.9) than those of female respondents (median age 40, average age 39.8).

In terms of location, respondents come from 45 cities/towns, primarily in Serbia, with a smaller representation from Bulgaria, the Czech Republic, Croatia, Montenegro, and North Macedonia (Figure 1). Given that the survey was conducted in Serbian, it is likely that respondents from abroad are part of the Serbian diaspora. Regarding education, the majority of the sample holds a bachelor's or master's degree (69.6%), then high school (18.7%), and PhD (10.9%).

The authors attempted to determine whether there was a statistically significant correlation between the gender, age, and education of the respondents on the one hand and the other variables on the other hand (motives by selecting and staying at a ski resort, the importance of additional facilities and activities, predominant sources of information, etc.). The hypothesis was that there are differences between the groups that should be integrated into development prospects to increase competitiveness. The analysis revealed that in our sample, there is no statistically significant relationship between the variables mentioned, as shown by the results of the correlation analysis and the value of the Pearson Chi-square coefficient ($\chi 2 > 0.05$). Even in the two cases where a statistically significant correlation was found (in the case of the correlation between gender and the additional content of

the ski resort (especially the gondolas) ($\chi 2 = 0.01$) and the main motive for staying at the ski resort (skiing) ($\chi 2 = 0.00$)), the level of confidence was low due to the small number of respondents in certain categories. Correlation analysis in Excel (0.5) only confirmed that the significance of diversity and capacity of skiing infrastructure was particularly relevant for skiers, which is not a novelty. Due to the nature of the questionnaire, where the majority of questions offered multiple answers and checking of up to three boxes (when checking visited ski resorts, even up to 10 possible answers), the conducted analyses showed that the sample was too small for other than descriptive statistics. As a result, the paper is based on descriptive data analysis.

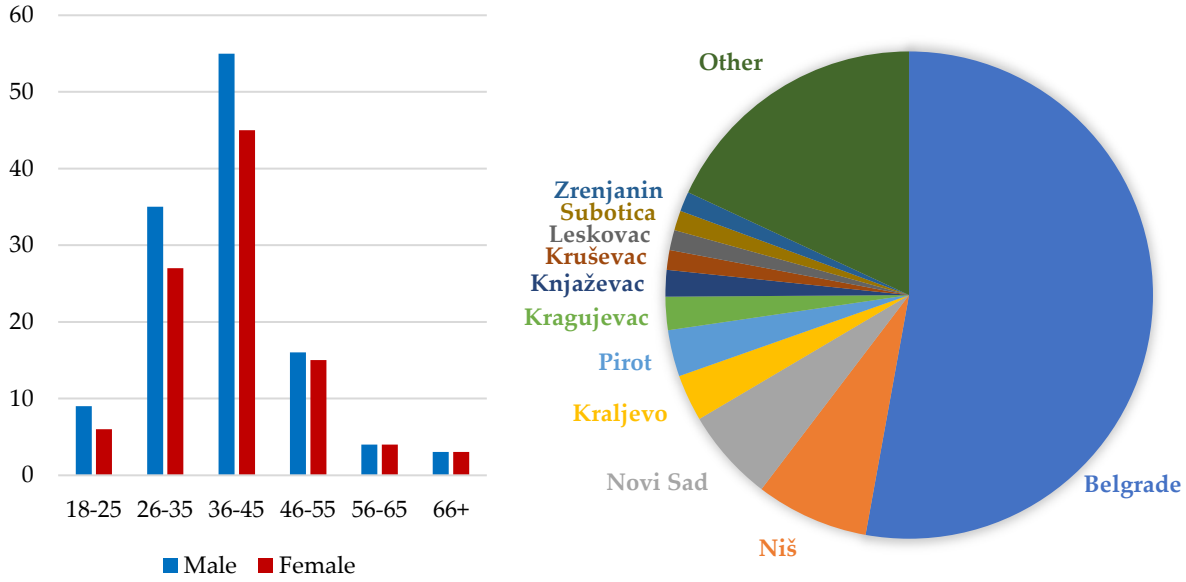


**Figure 1.** Sample breakdown: age groups by gender and location (city/town).

A strong majority of respondents visited ski resorts for skiing and/or other winter sports, while a significantly smaller portion was primarily interested in staying and walking in nature. A minimal number of respondents visited ski resorts mainly for relaxation in hotel amenities (Figure 2). These findings suggest that Serbian visitors continue to primarily view ski resorts as destinations for skiing. However, the shift in visitors' primary goals is influenced by the offerings of more diversified ski resorts, especially in the Alpine countries [23]. Conversely, ski resorts that provide a wider range of activities, including summer options, are increasingly chosen as destinations. As such, the diversification of activities, their uniqueness, and their ability to provide meaningful leisure experiences are becoming increasingly important [90,91], especially in the context of climate change and the shortening of the ski season.

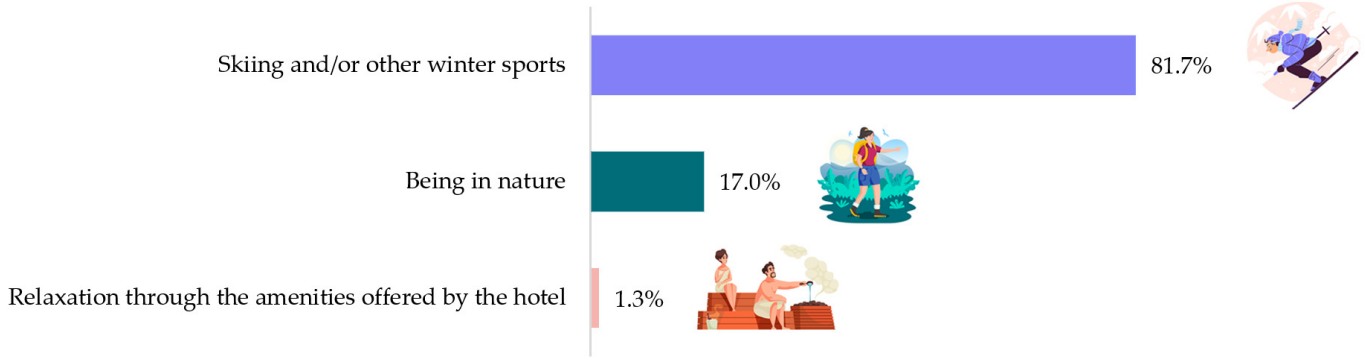


**Figure 2.** The primary motivation for staying at a ski resort (vectors designed by Freepic).

Those who primarily visit ski resorts for skiing prioritize the abundance of ski runs in terms of both number and difficulty, as well as the length of the ski runs. Nearly half of these visitors consider snowmaking coverage important, while gondolas, child-friendly facilities, and ski schools/instructors were given less importance. It appears that Serbian skiers have not developed a habit of skiing on small terrain slopes, as indicated by only 2.7% of skiers considering cross-country skiing trails an important feature of a ski resort (Figure 3).

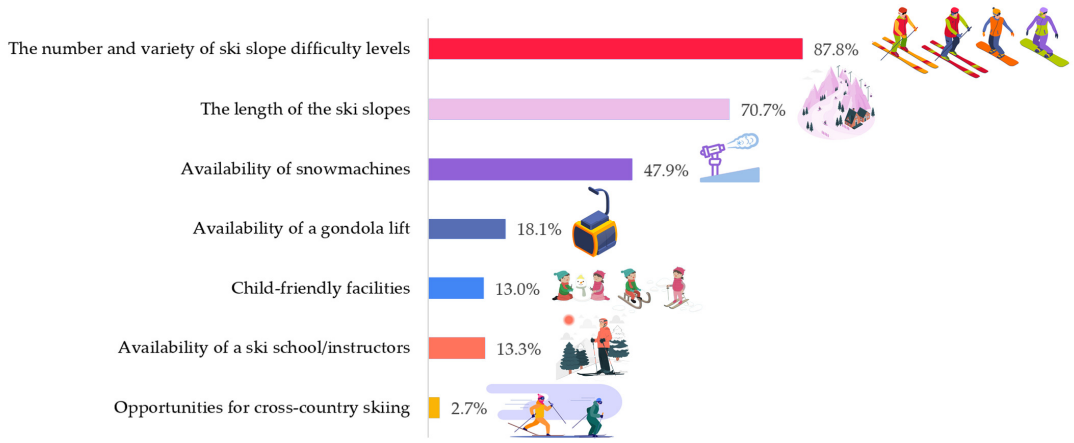


**Figure 3.** Preferences for ski facilities (vectors designed by Freepic).

When it comes to snowmaking, Serbian skiers are in line with those in Alpine countries. Initially, there was resistance to artificial snow, but over time, snowmaking has been accepted as a guarantee of reliable ski runs and, ultimately, as an advantage [22]. Consequently, the coverage of ski trails with artificial snow facilities has increased significantly, but it has also increased expenditures and impacted the environment [22,46]. This makes ski resorts in Serbia particularly vulnerable and less competitive compared to those in Bansko (Bulgaria) and the Alpine regions.

Out of the 230 respondents, 34.3% visited only ski resorts in Serbia, while 7.0% visited only ski resorts abroad. The remaining 58.7% visited both Serbian and foreign resorts, making up a total of 93.0% of respondents with recent experience in Serbian resorts and 65.7% with experience in resorts abroad. The most visited ski resorts in Serbia are Kopaonik, followed by Stara Planina and Zlatibor. Notably, the Zlatibor and Tara mountains are more frequently visited by respondents who have not been to ski resorts abroad (Figure 4). Among those with experience only in Serbian ski resorts, nearly one-third (29%) prefer to visit the same resort rather than seek new experiences. The most popular choices for these visitors are Kopaonik (53.2%) and Stara Planina (29.0%).

Over one-third of the total respondents visited ski resorts in Bulgaria, while ski resorts in other countries are less frequently visited (Figure 5). France, Bosnia & Herzegovina, Austria, Italy, and Slovenia were visited by more than 10% of respondents, whereas Montenegro, Switzerland, and Germany were visited by fewer than 10% each. Germany is the least visited country, with only 0.9% of respondents, and interestingly, none of those who only visited ski resorts abroad went to Germany. When focusing solely on the 151 respondents who visited ski resorts abroad and chose to visit resorts in just one country, Bulgaria emerges as the most popular destination, far surpassing other countries—26.5% of respondents visited Bulgaria, while only 5.3% visited Slovenia, with all other destinations attracting a significantly smaller share of visitors.

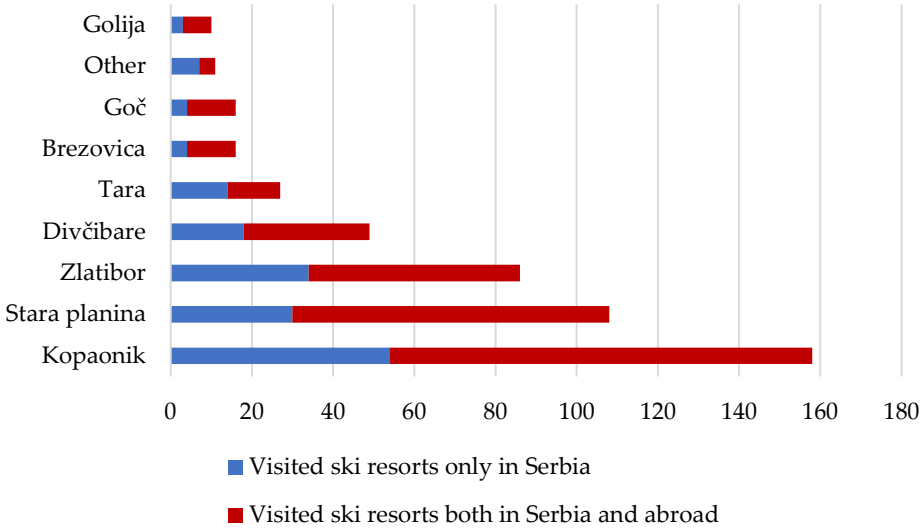


**Figure 4.** Visits to Serbian ski resorts (number of tourists).

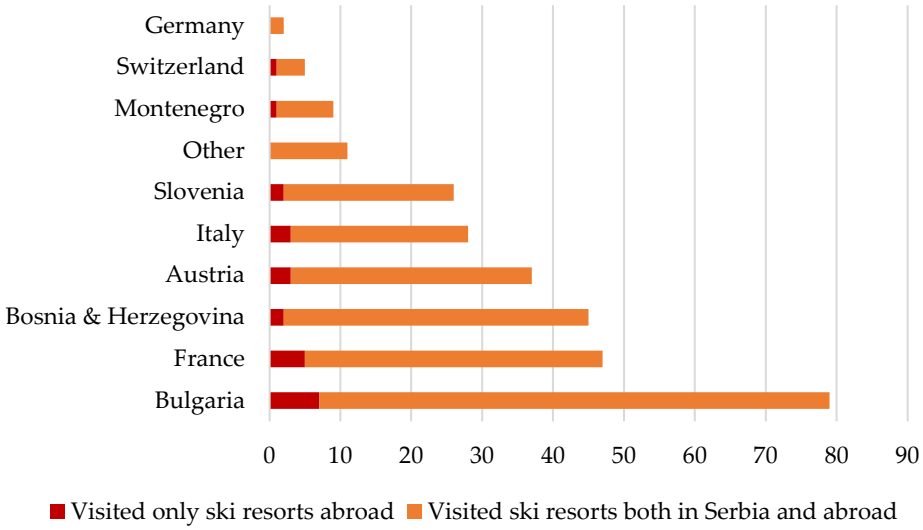


**Figure 5.** Visits in abroad ski resorts (number of visitors).

Our survey indicates that for Serbian tourists, the price of accommodation and the proximity of ski resorts are not the primary factors when choosing a destination. Instead, the technical facilities of the resorts play a more significant role. On the other hand, Bulgaria seems to be the first choice for many who decide to ski outside of Serbia due to the overall affordability of services.

A majority (91.4%) of respondents who visited ski resorts abroad stated that difficulty in finding accommodation in Serbian resorts was not the primary reason for choosing to ski abroad, as previously suggested by Podovac et al. [102]. Ćurčić et al. [74] note that both formal and informal accommodation construction has rapidly increased in Kopaonik in response to high demand. According to qualitative analysis from the survey, more relevant reasons for choosing foreign resorts include insufficient infrastructure capacity (e.g., ski lifts, parking, and littering) rather than accommodation difficulties. However, the issue of inadequate ski infrastructure is rarely mentioned in studies on Serbian ski resorts. Instead, other competitiveness challenges, such as the modernization of ski lifts, littering, traffic congestion, noise, and illegal construction, are often discussed [8,74,103].

In the overall sample, more than half of the respondents (62.2%) highlighted the price and (61.3%) the diversity and capacity of ski infrastructure as the most important factors in choosing a ski resort. The likelihood of snow (49.1%) is also seen as a key consideration,

while the natural beauty of the area (30.0%), variety of services and activities (24.8%), and the friendliness of the local population (8.3%) are less important. While price is a universal factor for all tourists globally, the relevance of other factors appears to differ for Serbian tourists, especially in relation to diversification and deseasonalization trends in Alpine ski resorts [23,92]. Serbian tourists tend to view ski resorts primarily for skiing and are less concerned with relaxation amenities, cultural tours, or hiking. When asked about the relevance of cultural heritage sites in the surrounding area, the majority (73.9%) responded that it was 'not important'. Similar opinions were expressed by visitors to a small ski resort in France, where the local population protested the development of cultural heritage sites, associating such efforts with 'old people' [104].

There are slight differences between those who visited foreign ski resorts and those who only visited resorts in Serbia. Tourists who have experience abroad place more significance on price than on the diversity and capacity of skiing infrastructure, while those who have only visited Serbian resorts value infrastructure diversity and capacity more. This high emphasis on price helps explain the popularity of Bulgarian resorts but not the greater popularity of French resorts over more affordable Austrian and Italian resorts [93]. In general, decisions about ski resort choice are influenced by multiple factors, as less than 10% of respondents selected only one factor. Based on this analysis, proximity to the ski resort is the least important to Serbian tourists visiting foreign resorts, but it is the most important to those skiing in Serbia. The likelihood of snow is moderately relevant across all groups.

Given the significant role of price, which Pröbstl-Haider and Flaig [91] identify as a determining factor for all tourists, not just Serbians, analyzing price aspects provides valuable insights into competitiveness. Respondents indicated that their decision to choose a ski resort is primarily shaped by the affordability of accommodation, with favorable ski pass prices also playing a role (Table 2). However, the prices of food, drinks, other services, and transport are less significant, likely because the costs for food and local transport are much lower compared to accommodation and ski pass prices. Interestingly, the majority of respondents (89.1%) stated that the presence of 4* or 5* hotels is not a significant factor in their decision-making process. This explains the high interest in resorts like Jahorina (which lacks five-star hotels) and affordable ski packages to France, where shared accommodation and self-service options (e.g., dormitory with eight beds, bus transport, and a 6-day ski pass for 429 €) are popular [105].

**Table 2.** Relevance of expenditure aspects (%).

| Aspect of Expenditures | Respondents Finding the Aspect Relevant (%) |
|---|---|
| Accommodation | 57.8 |
| Ski pass | 28.3 |
| Food, drinks, and other services that are not included in the price of accommodation | 9.1 |
| Costs of transport from the place of residence to the ski resort | 4.8 |

The respondents were asked two questions that, while not directly contributing to the main analysis, offer valuable insights into the broader context. One of these questions concerned the dominant type of transport used to reach their destination. The results revealed that the car is the most common mode of transportation, with buses being an occasional choice, airplanes rarely used, and trains not used at all (Figure 6).

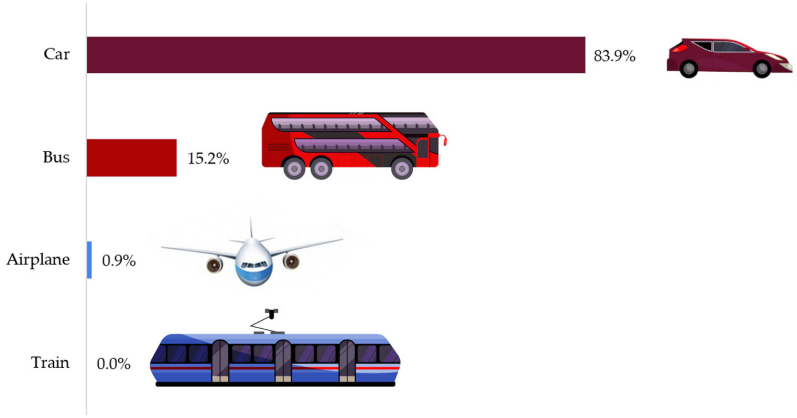


**Figure 6.** Visits in abroad ski resorts (vectors designed by Freepic).

A survey by Čolović & Mitić [106] revealed that Serbian tourists predominantly prefer coastal tourism (48%), with mountain tourism coming in second place (14%). Among those who favor mountain tourism, the majority (71%) opt to visit Serbian mountains rather than travel abroad. This preference may be explained by the fact that a dominant majority of respondents (83.9%) travel to ski resorts by car, and ski resorts in Alpine countries are two to three times farther for Serbian tourists.

The second question in the survey explored the sources of information about ski resorts and their offerings. The results showed that over half of the respondents identified the internet as their primary source, while 37.0% ranked friends as their second most trusted source (Figure 7). A small number of respondents relied on tour operators, and none used television as a means of learning about ski resorts. Nearly 10% mentioned other sources. Polyanskova [94] highlights the importance of online visibility for ski resorts, which is reflected in the habits of Serbian tourists and indicates the potential for using these tools to shape new visitor behaviors, such as expanding interest in other attractions like cultural heritage and soft tourism activities.

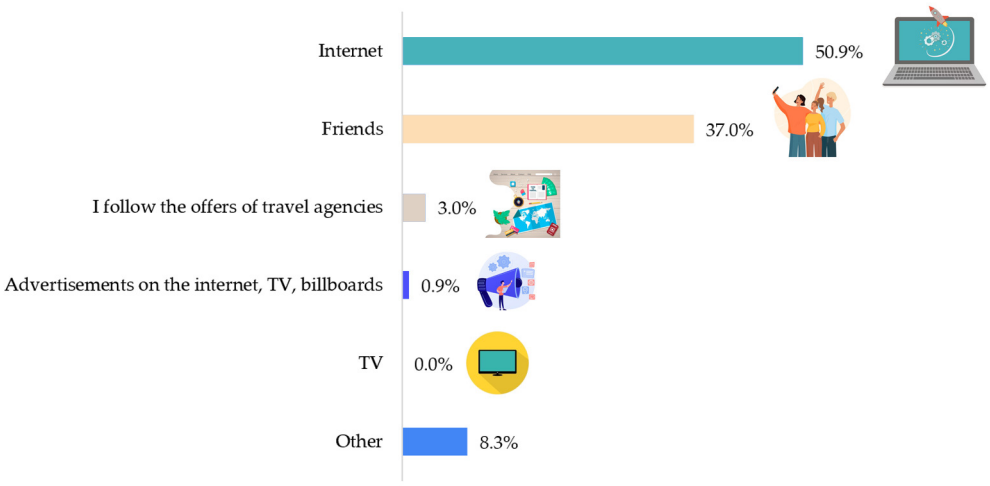


**Figure 7.** Sources of information (vectors designed by Freepic).

### *4.2. Qualitative Analysis of the Survey*

An open-ended question allowed respondents to share their thoughts, resulting in 49 essay responses. Of these, 41 comments were useful for analysis, while the remaining eight were either expressions of gratitude or suggestions for improving the survey. Most

comments focused on areas for improvement, with a few offering neutral or positive feedback regarding Serbian ski resorts.

The primary areas of dissatisfaction were the low value for money and difficulties related to the use of ski infrastructure. Low value for money was mostly linked to the high cost of ski passes, which were often accompanied by long waiting times for ski lifts, challenges in finding parking, and the lack of local public transportation to ski slopes (Table 3). According to Pröbstl-Haider & Flaig [91], prices should reflect market realities and be regularly adjusted for different demographic groups—this is what Polyanskova [94] refers to as 'flexible' pricing. In contrast, Serbian ski resorts tend to offer unattractive financial packages [103]. Regarding accessibility and transport, some ski resorts, like Val-d'Isère in France, have bus and train stations to serve tourists [93]. However, on Kopaonik, infrastructure and transportation issues are neglected or only partially addressed [103]: 'The problem of parking on Kopaonik during the ski season creates complete transport chaos, which at an altitude of 2000 m is completely unacceptable' [103].

**Table 3.** Complaint frequency and structure.

| Problem | Complaint Frequency |
|---|---|
| A lower value for money | **(often)** |
| Insufficient capacity of ski lifts, gondolas, etc. | |
| High accommodation costs | **(medium)** |
| Lacking parking lots | |
| Littering | |
| No public transport to ski runs | |
| Road maintenance | |
| Bad maintenance of ski runs (some are closed) | **(rare)** |
| Low diversity of ski runs | |
| Impolite service providers | |
| Lower quality of private accommodation | |

Among Serbian resorts, some respondents favor Kopaonik, while others prefer Stara Planina, citing factors such as trail quality, facilities for children, and ski pass affordability. However, other ski resorts were not mentioned or commented on. As noted by Stojsavljević et al. [20] and Bratić et al. [30], other popular mountains in Serbia are more frequently visited in the summer despite having ski infrastructure. Even after nearly 15 years since the establishment of the Stara Planina ski resort, the diversity of ski slopes, maintenance infrastructure, and additional activities have not been developed sufficiently to make it competitive with Kopaonik [74].

*'Kopaonik is "top" [superior] in comparison to Stara Planina in every aspect.'*

Nevertheless, 'Ski Resorts of Serbia' plans to develop new ski resorts, such as those on Golija (~1600 m altitude) and Kučaj-Beljanica (~1300 m altitude). This plan is controversial, as both mountains are below the 2000 m threshold and are located within protected areas: Golija is a Nature Park and part of the Golija-Studenica UNESCO Biosphere Reserve [8], while Kučaj-Beljanica is in the process of being declared a national park.

The majority of ski resorts in Serbia, including the two largest—Kopaonik and Stara Planina—are situated within protected areas: Kopaonik in Kopaonik National Park and Stara Planina in the Nature Park Stara Planina (currently awaiting reclassification as a national park). There are also cases, like Divčibare, where ski resorts were developed

before protection status was established. However, Serbia has yet to find an appropriate model to manage development in protected areas [8,74]. Ristić et al. [107] and Ćurčić et al. [74] observe that the lack of cooperation among relevant stakeholders has led to various environmental issues, including forest fragmentation, species extinction, erosion, pollution, and both noise and light pollution. Ristić et al. [108] highlighted the severe erosion and vegetation degradation caused by the early stages of resort development and the creation of ski runs.

Regarding environmental awareness, few respondents appeared well-informed about the global challenges faced by ski resorts. They expressed concerns about the future development and sustainability of ski tourism in Serbia. These concerns align with broader issues facing ski resorts worldwide, from North America to Europe and China [22,45,47,48,52,109,110].

> *'I have read some studies suggesting that ski resorts below 2000 m will struggle to operate in the next 15 years due to insufficient snowfall.'*

> *'Gondolas, as well as ski resorts below 1800 m above sea level, are a waste of money and are not necessary in this country, especially for the small resorts that we have.'*

They point out that illegal construction and littering not only damage the aesthetics of the mountains but also degrade the environmental quality. Illegal construction has been a long-standing issue in Serbia, particularly in tourist areas [8]. The environmental pressure in mountainous areas is further exacerbated by the delayed development of communal infrastructure compared to construction investments. This is in direct conflict with the fact that the most developed ski resorts in Serbia are located within protected areas.

Some respondents expressed strong opinions about the social dynamics, with some describing certain visitors as 'arrogant criminals'. However, according to [19], visitors to Serbian ski resorts do not primarily perceive their visits to Kopaonik and Zlatibor as opportunities for social recognition or displays of wealth.

> *'Kopaonik is a ski resort only for those who have not been to farther ones (abroad), for Belgrade's 'influencers' who come to take pictures . . . '.*

Several respondents showed resignation towards environmental neglect in Serbian ski resorts, which makes them choose ski resorts abroad. Indeed, coordination between municipalities in terms of communal maintenance and waste disposal is an issue with consequences [103]. Combined with fast-paced (illegal) construction, it creates great pressure on existing infrastructure, potentially leading to the devastation of natural resources and environmental quality [111].

> *'People [. . . ] who go skiing or snowboarding for the sake of the sport do not go to Zlatibor and Kopaonik due to crowds, litter, arrogant criminals, and uncontrolled construction, as well as a lack of parking space. [. . . ] the infrastructure does not support the number of tourists who visit and pollute the mountain, and nothing is being done about environmental quality.'*

The respondent sample indicated that their reasons for preferring domestic over foreign ski resorts can vary from emotional to rational (practical) nature in decisionmaking:

> *'Why fill the budget of other countries?'*

> *'Something that is near and can be compared to (Kopaonik) and even looked up to is Borovets (Bulgaria), which has excellent infrastructure, connectivity, and ski run preparation. The only thing that bothers me there is the roaming because I often go skiing and as a private entrepreneur I have to stay connected for work, so Kopaonik is the most practical for me.'*

Several respondents mentioned the importance of accommodation being close to the ski runs (ski-in/ski-out resorts), which is tied to the skiing culture that has developed in Serbia since the first ski resorts were established. Breaking this concept is challenging due to its convenience, transport independence, time-saving, etc. Despite existing spatial plans that designated the villages at the foot of the mountain as centers for lodging, illegal construction continues to flourish near the trails and ski lifts [8,74].

Some users noted the need for and expressed dissatisfaction with the lack of price adjustments for ski passes depending on age group, vulnerability, and time of the season. According to Polyanskova [94] and Pröbstl-Haider and Flaig [91], this is a matter of success and competitiveness and should be taken seriously through the creation of individualized offers and packages. The French case shows that the friendliness of staff, cleanliness, and good organization of services are just as relevant as their promotion and the promotion of other advantages [93].

> *'Why don't you have a discount for women over 60? There is one for those over 65, but I don't know how many women in Serbia ski over the age of 60. With my pension of 22,000 RSD per month, I save and scrape together to go skiing with my sister for 5 days because I love skiing.'*

> *'It is a shame that at Stara Planina the ski pass for only one open slope costs the same as when all the ski runs are open. This is the same every year!'*

> *'The price of the services is high and the same regardless of whether one or all tracks are working. The possibility of forming prices for a certain number of trips (e.g., 3–5 trips), or the ski pass only for the dragline, etc. . . . should be considered.'*

Regarding recommendations, respondents suggest several aspects that should be improved. They believe ski resorts in Serbia could enhance their competitiveness by regulating prices (e.g., lowering the prices for equipment rental and accommodation) and improving transportation infrastructure (e.g., introducing public transport to and from the base of the ski runs, better road maintenance, and establishing airports near ski resorts). Additionally, they suggest that Serbia needs new ski resorts with more extensive skiing infrastructure, diversified additional services and entertainment options, longer ski runs, and the possibility of night skiing.

A few positive comments highlight satisfaction with the entertainment offerings for children (Stara Planina) and the ability to use their phones without restrictions (no roaming charges, although the new billing system—'roaming like at home'—has been in effect since July 2021 in the Western Balkans, making Jahorina more competitive in this regard). As the quantitative analysis showed, some tourists are also content with the shorter distances between their place of residence and the ski resorts.

### *4.3. Comparative Analysis*

Based on the preferences of respondents (i.e., the top six ski destination countries), we selected one of the most popular ski resorts in each country for further analysis. Our research, conducted through various websites of ski resorts, ski towns, villages, tour operators, transportation providers, and scientific literature, allowed us to gain a closer insight into the diverse conveniences, advantages, and shortcomings of these popular ski destinations in Europe.

The analyzed indicators are presented as comparative and competitive advantages. Comparative advantages are primarily natural and cultural, which are difficult to change (or even impossible in the case of natural conditions) in the short term. However, they can be mitigated (e.g., the lack of snow can be addressed with snowmaking facilities) or influenced by targeted measures (e.g., opening museums or preserving local/traditional

architecture). On the other hand, competitive factors relate to existing infrastructure, services, and activities, which can be improved through both top-down and bottom-up development policies (Tables 4–6).

**Table 4.** Comparative advantages of the most competitive ski resorts for Serbian tourists—natural and cultural predispositions.

| Competitiveness Dimension | | Kopaonik (Serbia) | Bansko (Bulgaria) | Jahorina (B&H) | Val d'Isère (France) | St. Anton am Arlberg (Austria) | Cortina d'Ampezzo (Italy) |
|---|---|---|---|---|---|---|---|
| Natural predispositions | The altitude of the ski resort | 1057–2017 m | 990–2600 m | 1300–1890 m | 1850–3488 m | 1304–2811 m | 1224–2924 m |
| | Days with snow cover per season | 159 | - | 145 | Permanently (glacier) | - | Permanently (glacier) |
| | Outstanding natural beauty | National park Geoheritage | National park 2 UNESCO biosphere reserves Thermal mineral springs | Initiative for a nature park | Vanoise National Park The Baillettaz Nature Reserve The Col de l'Iseran Biotope Decree Natura 2000 | Mösli Flirsch Schnann Gorge | UNESCO World Heritage Site |
| | Distance from Belgrade (km, minutes, costs—gas and toll) | 265 km 3 h 47 min 34.9 € | 534 km 5 h 41 min 62.1 € | 317 km 5 h 35 min 39.7 € | 1422 km 14 h 307 € | 1007 km 10 h 37 min 171 € | 817 km 8 h 36 min 137 € |
| Cultural predispositions | Archaeological sites | Yes (settlement and basilica) | Yes (fortresses, basilicas, necropolis, etc.) | No | No | Yes (fortification) | Yes (castle) |
| | Historical sites | Yes (UNESCO heritage site—Studenica Monastery, other monasteries, Ottoman hammam) | Yes (old town, UNESCO heritage site—Rila monastery) | Yes (Sarajevo) | Yes (7 chapels) | Yes (Gand Mine) | Yes (churches, villages) |
| | Festivals | Yes (music week) | Yes (jazz festival, opera festival, ballet festival, Balkan music festival) | Yes (music and film festivals) | Yes (carnival, music festivals, film festival) | Yes (village festival, music festival) | Yes (summer festivals) |
| | Museums | No | Yes (7) | No | Yes (2) | Yes (1) | Yes (3) |
| | Picturesque architecture | Yes | Yes | No | Yes | Yes | Yes |

Sources: [112–121].

**Table 5.** Comparative advantages of the most competitive ski resorts for Serbian tourists—infrastructure.

| Competitiveness Dimension | Kopaonik (Serbia) | Bansko (Bulgaria) | Jahorina (B&H) | Val d'Isère (France) | St. Anton am Arlberg (Austria) | Cortina d'Ampezzo (Italy) |
|---|---|---|---|---|---|---|
| The total length of ski runs | 64 km | 75 km | 57 km | 320 km | 305 km + 200 km deep snow | 190 km |
| Total number of ski runs and trails | 36 | 18 | 16 | 171 | 201 | 83 |
| Diversity in ski run types | Alpine skiing, cross country, freestyle, sledding trail | Alpine skiing, cross country, freestyle | Alpine skiing, cross country, snowboard park, ski tunnel, sledding trail | Alpine skiing, cross country, freestyle, ski touring, summer skiing, sledding trails | Alpine skiing, cross country, freestyle, sledding trail | Alpine skiing, cross country, freestyle, sledding trails |
| Diversity in ski run difficulty levels | Blue Red Black Green | Blue Red Black Green | Blue Red Black | Blue Red Black Green Ski touring | Blue Red Black | Blue Red Black |
| Number of ski lifts | 25 | 15 | 16 | 71 | 87 | 36 |

**Table 5.** *Cont.*

| Competitiveness Dimension | Kopaonik (Serbia) | Bansko (Bulgaria) | Jahorina (B&H) | Val d'Isère (France) | St. Anton am Arlberg (Austria) | Cortina d'Ampezzo (Italy) |
|---|---|---|---|---|---|---|
| Number of cable cars and/or gondolas | 1 | 1 | 1 | 11 | 7 | 5 |
| Lift capacity (persons per hour) | 34,000 | 21,800 | 31,000 | 144,681 | 145,231 | 60,000 |
| Night skiing | Yes | Yes | Yes | No | No | No |
| Parking (costs per day) | Street: free<br>Outdoor parking: 6 €<br>Garage: from 16 € | 5 € | 7.6 € | From 10.9 € (on a 7-days basis) | 7 € | Free or 2 €/h |
| Snowmaking facilities | Yes (97% of ski runs) | Yes (100% of ski runs) | Yes (80% of ski runs) | Yes (40% of ski runs) (No need on the glacier) | Yes (88% of ski runs) | Yes (100% of ski runs) |
| Hiking trails | Yes | Yes | Yes | Yes | Yes | Yes |

Sources: [112–121].

**Table 6.** Comparative advantages of the most competitive ski resorts for Serbian tourists—services and activities.

| Competitiveness Dimension | Kopaonik (Serbia) | Bansko (Bulgaria) | Jahorina (B&H) | Val d'Isère (France) | St. Anton am Arlberg (Austria) | Cortina d'Ampezzo (Italy) |
|---|---|---|---|---|---|---|
| Number of arrivals | 151,000 | 362,000 | 55,000 | 2,000,000 | 320,000 | 280,000 |
| One-day adult ski pass in the peak season (€) | 36.6 € (age group: 12–64) (discount for older than 65) | 46 € (age group: 20–75) (free for those older than 75) | 37 € (age group: 12–64) (free for those older than 75) | 58 € (age group: 19–64) (discount for older than 65) | 67 € (age group: 20–63) (free for those older than 75) | 74 € (age group: 17–64) (free for those older than 75) |
| Six-day adult ski pass in the peak season (€) | 153 € | 263.4 € | 159 € | 378 € | 358 € | 373 € |
| Equipment rental costs (per day and 6 days) | 11.5 € (6 days: 50 €) | From 18 € (6 days: 58 €) | 17.9 € (6 days: 92 €) | From 45 € (6 days: 142 €) | 47 € (6 days: 208 €) | 38 € (6 days: 160 €) |
| Ski school (individual lesson per hour) | 40 € | From 47.5 € | 30 € | From 66 € | 115 € (up to 2 persons) | 50 € |
| Accommodation costs per night in a double room for 2 persons, 3* hotel with breakfast | From 94 € | From 43 € | From 60 € | From 275 € | From 160 € | From 90 € |
| Accommodation costs per night for 2 persons in an apartment | From 30 € | From 36 € | From 40 € | From 200 € | From 200 € | From 90 € |
| Accommodation costs per night in a double room for 2 persons, 5* hotel with breakfast | From 250 € | From 150 € | No 5* hotels (in construction) | From 590 € | From 1020 € | From 450 € |
| Bus to ski runs | Yes | Yes | No | Yes | Yes (train, too) | Yes |
| Direct bus connection from Belgrade | Yes | Yes | Yes | No | No | No |
| Food index prices on the national level (2017: world average = 100 [1]; 2021: EU = 100) | 2017: 86.2<br>2021: 85.5 | 2017: 84.9<br>2021: 79.9 | 2017: 86.9<br>2021: 78.8 | 2017: 132.25<br>2021: 110.2 | 2017: 145.0<br>2021: 107.5 | 2017: 129.3<br>2021: 105.9 |
| Touristic guides | Yes | Yes | Yes | Yes | Yes | Yes |
| Bus to local places of interest | No | Yes | Yes | Yes | Yes | Yes |

**Table 6.** *Cont.*

| Competitiveness Dimension | Kopaonik (Serbia) | Bansko (Bulgaria) | Jahorina (B&H) | Val d'Isère (France) | St. Anton am Arlberg (Austria) | Cortina d'Ampezzo (Italy) |
|---|---|---|---|---|---|---|
| Summer offer | Hiking, lift to the top, adventure park, congress center, tubing, etc. | Hiking, golf, gondola, rafting, zip line, rope garden, mountain biking, water slide, mini golf, congress center, etc. | Rock climbing, hiking, zip line, rafting, bike park, trail, lift to top, hunting and fishing, paragliding, sky diving, loopster, congress center, etc. | Electric car track, 150 km bike park, golf, riding, etc. | Hiking, biking, forest park, golf, rock climbing, paragliding, congress center, mountain railways, archery, kids program, etc. | Hiking, biking, golf, climbing, via ferrata, adventure park, cable car, quad bikes, horse riding, etc. |
| Facilities and amenities for children | Yes (child care, baby ski lift, ski kinder-garten/training ground for beginners, amusement park) | Yes (ski kindergarten, childcare, playgrounds, swimming pools, sledding trail) | Yes (paintball, adventure park, playground, tubing, tower, artificial lake, gym, 3 kindergartens) | Yes (ice ring, kids parks, biathlon, kids show, ski kindergarten) | Yes (kids park, ice ring, curling, wonderland, horse sleigh riding, tobogganing) | Yes (pony rides, ice skating) |
| Entertainment | Bowling, adrenaline ride, mountain climbing, cycling tours, kayaking, quad tours, paragliding, zip line, bobsledding. | Ice skating, escape rooms, airsoft arena, apres ski. | Attractions on the lake, gondola, carting, alpine coaster, zip line, sky diving, adrenaline park, bike trail, adventure park, tubing. | Apres ski, cinema, fireworks, farm visits, wildlife walks, air board (snow-bodyboard), border cross and freestyle parks, swimming pools, escape rooms. | Après-ski, sports center, husky ride, horse sledges ride. | Ice skating, curling, sled dog, fat biking, snow kitting, wellness, language center, ice climbing. |
| Aqua park | In construction | Yes | No | Yes | Yes | No (thermal baths) |
| Hiking tours | Yes | Yes | Yes | Yes | Yes | Yes |
| Organized cultural tours | Yes | Yes | Yes | Yes | Yes | Yes |

Sources: [112–121]. [1] Definition: Broad-based food price index. The world average food price level is set at 100. Higher values for a country indicate more expensive food prices relative to the world and other countries.

Concerning altitude, Serbian ski resorts, particularly Kopaonik, are more competitive than Jahorina due to their higher maximum altitude, which positively influences snow cover persistence. According to George and Achin [90], mid-altitude resorts must secure snow production by introducing artificial snowmaking facilities and developing diversified tourism offerings. The development of 'alternative' activities in destinations dominated by ski tourism is crucial, especially for the summer season and as a 'backup' to alleviate the economic impact during snowless winters. Local resources, such as natural landscapes and cultural heritage (including agricultural and industrial history), play an essential role in this context [90]. Opačić and Banda [122] noted that cultural and historical heritage is particularly attractive to older tourists, so ski resorts should tailor their promotions to appeal to all age groups.

Outstanding natural beauty is evident in all six mountain destinations. Some resorts are located near internationally recognized natural heritage sites—Bansko is in National Park Pirin, surrounded by the UNESCO World Heritage Site of Pirin and two UNESCO biosphere reserves, Julen and Bajuvi Dupki, while Cortina d'Ampezzo is situated within the UNESCO World Heritage Site of the Dolomites [123]. Nearly 60% of Val d'Isère municipality is protected by the French Environmental Code, including the Vanoise National Park and the Baillettaz Nature Reserve [124]. Kopaonik ski resort is within the Kopaonik National Park, including Jelovarnik Nature Reserve. Jahorina Mountain is undergoing the process of being declared a nature park [125].

Distances of ski resorts from Belgrade, calculated according to the Michelin Route Planner [118], reveal that Kopaonik and Jahorina are the closest ski resorts to Belgrade. However, distance does not correlate directly with travel time due to the road quality. Bansko, while the third closest resort, is more convenient to access by car or direct bus connection than Jahorina, though travel time is affected by border crossing delays.

Most resorts boast rich historical heritage and archaeological sites nearby. Kopaonik, for instance, has Nebeske Stolice, an ancient settlement and basilica with stunning views, while St. Anton am Arlberg has a historic fortification in the village of Burg Arlen. Many of these sites are open to the public (e.g., Castello di Botestagno in Cortina d'Ampezzo) and attract visitors (especially the St. Nikola complex and Sitan Kale fortress in Bansko). Sarajevo, just 30 km from Jahorina, stands out for its diverse cultural and historical heritage. Kopaonik is near significant Serbian medieval monasteries and churches, including the UNESCO-listed Studenica Monastery, while Bansko features traditional architecture and the nearby UNESCO-listed Rila Monastery.

Cultural and historical heritage significantly enhances a destination's appeal. Bansko, with its seven museums and galleries, stands out for its rich offer of cultural experiences, surpassing other destinations in this regard. In comparison, Kopaonik and Jahorina, designed as ski-in/ski-out resorts, lack such offerings. Val d'Isère has an open-air museum, and St. Anton am Arlberg features a ski museum. Cortina d'Ampezzo houses the Great War Museum in Forte Tre Sassi [126].

The architecture of the compared resorts is typically picturesque, reflecting traditional heritage and natural surroundings, especially in well-preserved central town areas (Figure 8). Jahorina, however, lacks a distinct architectural style, with a mix of family cottages and modern hotels. The 'Kopaonik architectural style' incorporates climate, landscape aesthetics, and tradition and has endured despite pressures from fast construction [127]. In Cortina, regulations prohibit the construction of tall, disproportionate buildings [128], whereas construction regulations in protected areas in Serbia are often neglected [8].

**Figure 8.** Architecture and visual identity of compared ski resorts [129–134].

In terms of overall cultural predispositions, Bansko stands out due to its combination of historical and cultural attractions, including archaeological sites, an old city center, museums, and international cultural festivals. This provides a competitive edge by offering a richer experience for all age groups. Ski resorts, especially during the off-season, organize music, film, and other festivals, attracting a global audience, including non-skiers, and enhancing the region's image.

The analysis of ski-related infrastructure reveals distinct differences between the 'standalone' resorts (Bansko, Jahorina, and Kopaonik) and the interconnected ski areas

(Cortina d'Ampezzo—part of Dolomiti Superski, St. Anton am Arlberg—part of Ski Arlberg, and Val d'Isère—part of Espace Killy) (Table 5). This is particularly evident in the total length of ski runs and lift capacities. The Alpine resorts have significantly larger ski areas, including many more ski runs and lifts, along with direct connections to other ski resorts. Most resorts offer a variety of alpine and cross-country trails, with some, like Val d'Isère, hosting freestyle and sledding trails and snowmaking facilities (Val d'Isère boasts La Snow Factory, the largest artificial snowmaking facility in Europe). Kopaonik and Jahorina provide a competitive advantage through night skiing, which is available via multiple lifts, with Bansko offering night skiing once a week. Val d'Isère is the only resort in the region to offer summer skiing on a glacier. St. Anton and Cortina stand out for their extensive marked hiking trails, covering over 300 km and 400 km, respectively.

The pricing analysis for ski passes, ski schools, equipment rental, and accommodation during the peak season of February 2023 shows significant differences, with costs only partially related to the size of the ski resorts. For example, an adult can rent full ski equipment and ski for six days in Kopaonik for just over 200 €, while in St. Anton am Arlberg, the same services cost more than 550 € for the same period. Pricing criteria differ across resorts: in Kopaonik, an 'adult' is anyone over 12 years of age, while in St. Anton am Arlberg, only those older than 20 years are considered adults for full-price tickets. Older individuals (over 75) can ski for free only in Kopaonik and Cortina. Individual ski lessons are cheapest in Jahorina (30 €/h) and most expensive in St. Anton (120 €/h) (Table 6).

Accommodation prices during the peak period of February 2023 vary widely. Based on Booking.com data [115], Bansko offers the most affordable options, while Val d'Isère is the priciest. Arlberg offers limited apartment rentals, with many small family-run hotels available that include breakfast. Jahorina lacks five-star hotels (though one is under construction), while Arlberg has a single five-star hotel, which is the most expensive, priced from 1000 €/day for two people. Bansko, by contrast, has the most affordable five-star hotels (starting from 150 €). According to statistics, Austrian and French ski resorts are among the most visited globally [93], emphasizing the significance of tradition and promotion in attracting customers.

Though specific food price data for the resorts is unavailable, we used national food price indices to approximate differences. According to the 2017 rankings, Bosnia & Herzegovina, Bulgaria, and Serbia fall into the lower price category compared to Alpine countries like Austria, France, and Italy. Bulgaria's food prices have increased, while Bosnia & Herzegovina remains the cheapest, with Austria and France as the most expensive.

For transportation, tourists not staying near ski lifts and gondolas can use local bus services, with direct bus connections from Belgrade available only to resorts in Serbia, Bosnia & Herzegovina, and Bulgaria. For other resorts, travel agencies often offer bus transport as part of accommodation packages (e.g., [105]). In all resorts, tourists can access a wide range of tourist guides and, except in Kopaonik, local buses. Survey respondents indicated that they rarely visit ski resorts for cultural heritage, as skiing is considered the primary attraction.

In line with the trend of diversification, all the resorts aim to expand their offerings to attract tourists year-round and for all ages. Facilities for children, including sports and entertainment options as well as childcare services, are especially important. There are also strong hiking and cultural tour offerings. Val d'Isère, Cortina, and Bansko are known for excellent Après-ski activities, although Serbian tourists in the survey indicated that these would not be primary factors in their choice of ski resorts.

Ski resorts in Serbia should focus on implementing sustainable tourism. This approach, which was developed over two decades ago, aims to minimize local environmental impacts while prioritizing community participation and poverty alleviation, as Neto [135] empha-

sizes. According to Turčinović et al. (2024) [136], the majority of the local population on Kopaonik, Stara Planina, and Zlatibor believes that sustainable tourism development has significantly increased their income and improved their standard of living. Additionally, research by Radjenović et al. [137] highlights the importance of investing in environmental preservation and promotion, which can boost tourism in protected areas, contributing to economic development without compromising biodiversity, geodiversity, or the cultural and historical values of these areas.

Seasonality remains a major challenge for sustainable tourism, affecting the optimal use of investments, infrastructure, and human capital. The fluctuation of tourist numbers is a significant issue for the prosperity of all Serbian ski regions [138]. Agacević and Xu [139] propose a solution to this problem by attracting Chinese travelers during the low season. Since China has been the world's leading source of tourism since 2012, it is increasingly relevant for global destinations. Favorable conditions include a visa-free regime, direct flights to several cities in China, growing Chinese investments in Serbia, Chinese workers on domestic construction sites, and the free trade agreement between the two countries. While Serbia's non-membership in the Schengen Area creates certain restrictions for EU tourists, it offers fewer restrictions for citizens of countries like China, Russia, India, and others.

One option for diversification is the development of adventure tourism, which has gained increasing support in recent years, especially following the COVID-19 pandemic. According to Milutinović and Leković's [140] analysis, Serbia experienced growth in adventure tourism, rising from 39th place in 2018 to 26th place in 2020 among developing countries. Despite the country's abundant natural resources, further development in this area is needed.

Malinović-Milićević et al. [32] suggest that increasing warmer thermal conditions in the future could have both positive and negative impacts on tourism. While the ski season may shorten, leading to more intensive use of adaptation measures such as snowmaking, it could also encourage a shift toward other forms of recreational activities. Additionally, warmer thermal conditions are expected to become more pronounced at lower altitudes, potentially making mountain areas more attractive for tourism, leisure, and recreational activities, particularly during the warmer months of the year.

According to the latest data from the World Economic Forum [141], Serbia's scores are low in areas such as investment and availability of tourist services and infrastructure (2.5 out of 7), promotion of natural resources (1.6), and promotion and development of cultural resources (1.7). These aspects need further development to enhance the competitiveness of Serbian ski resorts in both national and global markets. However, Serbia scores well in price competitiveness (5.0), healthcare (6.0), ICT infrastructure (5.6), labor market quality (4.3), safety and security (6.1), and openness to visitors (4.5).

The term 'ecotourism' was coined by Mexican architect H. Caballos-Lascuráin and officially adopted by the IUCN in 1996. Ecotourism refers to environmentally responsible, low-impact travel to natural areas aimed at enjoying and appreciating nature and its accompanying cultural features. It focuses on the conservation of biodiversity and benefit-sharing with local communities with their informed consent and educational input. Despite this, Serbia has not been successful in popularizing ecotourism. A recent study by Tešin et al. [142] revealed that 46.2% of Serbian citizens most frequently visit mountain destinations, ranking third after coastal and urban destinations. However, 56% of respondents were not familiar with the concept of ecotourism. The main barriers to visiting eco-destinations were inadequate waste disposal, lack of information, time and financial constraints, and limited offerings by travel agencies.

A significant shift toward ecotourism is desirable, as Serbia's ski resorts are located in regions of great natural and cultural significance. Cvetković and Šljivović [143], in their SWOT analysis of the 'Kopaonik' National Park, identified the park's main strengths, such as high biodiversity, nearby thermo-mineral spas, 15 immovable cultural sites, and geoheritage of universal value. However, weaknesses include illegal construction, neglect of natural values, an underdeveloped summer tourist offer, and a lack of eco-, cultural-historical, health, and ethno-tourism. They concluded that the best development strategy for Kopaonik would involve promoting its rich biodiversity and increasing its tourist recognition compared to other destinations in Serbia.

## 5. Conclusions

Compared to Bulgaria and Alpine countries, Serbia faces challenges in competitiveness regarding comparative advantages, such as inherent natural beauty and geographic features, which are largely unchangeable. However, Serbian ski resorts have potential strengths, including unique natural and cultural heritage and lower costs for ski passes and food, which could appeal to foreign tourists seeking value and alternatives. In terms of competitive advantages—factors that can be built and improved in the short term—Serbia lags behind most international ski destinations frequently visited by Serbian tourists, with the exception of Jahorina, which is similarly underdeveloped.

Our research confirms our first hypothesis: opening new ski resorts at lower altitudes and latitudes is not sustainable or justified in the context of climate change. Lower elevations increase vulnerability to inconsistent snow cover, higher costs for snowmaking, shorter ski seasons, and significant environmental consequences. However, the second hypothesis is only partially validated. To remain competitive and retain domestic tourists, ski resort operators must improve infrastructure and enhance services. Diversification and the promotion of complementary activities are essential to reduce reliance on artificial snow production, mitigate environmental impacts, and adapt to climate change. However, there is currently a lack of awareness among tourists regarding these alternative opportunities and their benefits.

Currently, Serbian tourists perceive ski resorts primarily as skiing destinations, with limited awareness of alternative activities such as summer tourism, cultural heritage visits, nature-based recreation, and spa tourism. To address this, ski resort operators must actively develop offers and promote alternative activities through targeted marketing strategies, leveraging popular channels like the Internet to raise awareness.

In response to the overarching question—what strategic priorities should Serbian ski resort operators focus on for future development?—the following recommendations emerge:

1. Short-term priorities:
    - Enhance value for money by improving basic infrastructure (e.g., waste disposal, parking facilities, and illegal construction management);
    - Adjust pricing structures to reflect quality improvements and offer better affordability for various age groups and socio-economic segments.
2. Long-term strategies:
    - Focus on redevelopment and modernization of existing ski resorts rather than constructing new ones, considering that Serbia's current resorts are already located at the country's highest altitudes. Any new resort at lower elevations would be unreliable for snow activities, expensive to maintain due to increased reliance on artificial snow, and environmentally unsustainable;

- Mitigate environmental impacts by promoting activities with lower ecological footprints, such as cross-country skiing, which is both cost-effective and eco-friendly;
- Diversify tourism offerings to include year-round activities like extreme sports, hiking, cultural heritage tourism, and spa-based recreation.

3. Collaboration and regional integration:
   - Ski resort operators should broaden cooperation with regional stakeholders, including national and nature park authorities, museums, monasteries, and spa centers. This approach would create a more holistic and sustainable tourism offering that extends beyond the ski resorts themselves.

Given the inevitable impacts of climate change and the saturation of the ski tourism market, Serbia's ski resorts must adopt a more sustainable, diversified, and environmentally conscious development strategy. By improving infrastructure, promoting alternative activities, and fostering regional collaboration, Serbian ski resorts can enhance their competitiveness, ensure long-term viability, and attract a broader range of tourists throughout the year.

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